

BIOCHEMICAL AND BIOPHYSICAL

Research Communications

EDITORS:

Paul D. Boyer

Frederick C. Neidhardt

I. C. Gunsalus

Elizabeth F. Neufeld

B. L. Horecker

W. D. Phillips

Boris Magasanik

Esmond E. Snell

Volume 78 • 1977



ACADEMIC PRESS

New York and London

A Subsidiary of Harcourt Brace Jovanovich, Publishers

Copyright © 1977 by Academic Press, Inc.

ALL RIGHTS RESERVED

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

Made in the United States of America

Contents of Volume 78

Volume 78, Number 1, September 9, 1977

AUTHOR INDEX, Volume 78, Number 1, September 9, 1977	ii
PAUL J. BIRCKBICHLER, GERALD R. ORR, HENRY A. CARTER, and M. K. PATTERSON, JR. Catalytic Formation of ϵ -(γ -Glutamyl)lysine in Guinea Pig Liver Transglutaminase	1
L. A. PINNA, A. DONELLA DEANA, and F. MEGGIO. Casein Phosphatase Dependent Dephosphorylation of ^{32}P -Casein Fractions Labelled by Two Protein Kinases	8
PAUL R. HARTIG and MICHAEL A. RAFTERY. Lactoperoxidase Catalyzed Membrane Surface Labeling of the Acetylcholine Receptor from <i>Torpedo californica</i>	16
D. SILIPRANDI, A. TONINELLO, F. ZOCCARATO, and N. SILIPRANDI. A Possible Mechanism for Respiration-Dependent Efflux of Mg Ions from Liver Mitochondria	23
JIMMY D. ALLEN and STANLEY M. PARSONS. Properties of the 5'-Terminus of tRNA ^{His} : Kinetics of Polynucleotide Kinase Catalyzed Exchange and Effect of Dephosphorylation on the Aminoacylation Reaction	28
CRAIG DEES and JAMES D. OLIVER. Growth Inhibition of <i>Halobacterium cutirubrum</i> by Cerulenin, a Potent Inhibitor of Fatty Acid Synthesis	36
GEORGE H. ROTHBLAT and FREDERICK D. DEMARTINIS. Release of Lipoprotein Lipase from Rat Adipose Tissue Cells Grown in Culture	45
CHING-SAN LAI and LAWRENCE H. PIETTE. Hydroxyl Radical Production Involved in Lipid Peroxidation of Rat Liver Microsomes	51
MARSHALL S. MILLMAN and JAMSHID AZARI. Adenosine Triphosphate-Induced Rapid Calcium Release from Fragmented Sarcoplasmic Reticulum	60
CHRISTIAN ROY, GILLES GUILLON, and SERGE JARD. Specific Effects of Sulfate Ion on Vaso-pressin-Sensitive Adenylate Cyclase: A Reevaluation of the Magnesium Regulatory Role	67
C. CREMISI, A. CHESTIER, C. DAUGUET, and M. YANIV. Transcription of SV 40 Nucleoprotein Complexes <i>in Vitro</i>	74
ENRIQUE ROZENGURT, JERRY A. SCHNEIDER, IVAN DIAMOND, and ANN LEGG. The High Rate of Aerobic Glycolysis of Transformed 3T3 Cells Persists after Cell Homogenization	83
ALVIN M. MALKINSON. Developmental Changes in the Cyclic AMP-Dependent Phosphorylation and Dephosphorylation of a Protein Endogenous to Murine Brain Liver	91
K. NAGAYAMA, K. WUTHRICH, P. BACHMANN, and R. R. ERNST. Two-Dimensional J-Resolved ^1H n.m.r. Spectroscopy for Studies of Biological Macromolecules	99
JOHN L. MARKLEY, ELTON L. ULRICH, and DAVID W. KROGMANN. Spinach Plastocyanin: Comparison of Reduced and Oxidized Forms by Natural Abundance Carbon-13 Nuclear Magnetic Resonance Spectroscopy	106
C. R. PACE-ASCIAC, M. C. CARRARA, and Z. DOMAZET. Identification of the Major Urinary Metabolites of 6-Ketoprostaglandin $\text{F}_1\alpha$ (6K-PGF $_{1\alpha}$) in the Rat	115
SYED M. HASAN and TOMOFUSA TSUCHIYA. Glutamate Transport Driven by an Electrochemical Gradient of Sodium Ion in Membrane Vesicles of <i>Escherichia coli</i> B	122
MICHAEL W. ANDERSEN, N. RAGHUVIEERA BALLAL, and HARRIS BUSCH. Nucleoli of Thioacetamide-Treated Liver as a Model for Studying Regulation of Preribosomal RNA Synthesis	129
J. A. FERNANDEZ-POL. Iron: Possible Cause of the G $_1$ Arrest Induced in NRK Cells by Picolinic Acid	136
M. S. BRODY, J. R. STEINBERG, B. A. SVINGEN, and R. W. LUECKE. Increased Purine Nucleotide Cycle Activity Associated with Dietary Zinc Deficiency	144
SUZANNE F. JACKSON, BYRON R. WENTZEL, DENNIS R. MCCALLA, and KARL B. FREEMAN. Chloramphenicol Damages Bacterial DNA	151
I. BERTINI, G. CANTI, C. LUCHINAT, and A. SCOZZAFAVA. Evidence of Exchangeable Protons in the Donor Groups of the Acidic Form of Cobalt Bovine Carbonic Anhydrase B	158
A. MAJUMDAR, R. ROY, A. DAS, A. DASGUPTA, and N. K. GUPTA. Protein Synthesis in Rabbit Reticulocytes. XIX: EIF-2 Promotes Dissociation of Met-tRNA $^{\text{Met}}$ -EIF-1-GTP Complex and Met-tRNA $^{\text{Met}}$ Binding to 40S Ribosomes	161
VITO D'AURORE, ANDREW M. STERN, and DAVID S. SIGMAN. Inhibition of <i>E. coli</i> DNA Polymerase I by 1,10-Phenanthroline	170
F. BOSSA, F. MARTINI, D. BARRA, C. BORRI VOLTATTORNI, A. MINELLI, and C. TURANO. The Chymotryptic Phosphopyridoxyl Peptide of DOPA Decarboxylase from Pig Kidney	177
T. ORTEGA, J. RIVAS, J. CARDENAS, and M. LOSADA. Metabolic Interconversion of Ferredoxin-Nitrate Reductase and NADP Reductase of <i>Nostoc muscorum</i>	185
E. A. HOSEIN, M. LAPALME, and E. B. VADAS. Monitoring the Stereospecificity of Morphine Action <i>in Vivo</i> and <i>in Vitro</i> through Brain Membrane Lipid Fluidity	194
J. FARJANEL, A. CHAMSON, and J. FREY. Evidence for the Association of Prolyl Hydroxylase from Chick Embryos with Membranes through Membrane-Bound Procollagen	202
KAZUO YANAGI, DIMITRIS ZOUIAS, and MARK G. RUSH. Symmetric Transcription of Simian Virus 40 DNA in the Nuclei of Transformed Mouse Cells	210
MERCE FORNELLS and JUAN A. SUBIRANA. Specific Degradation of Histones H1 and H3	217

ABRAHAM NOVOGRODSKY, SURESH S. TATE, and ALTON MEISTER. Uptake and Utilization of L-Glutamine by Human Lymphoid Cells; Relationship to γ -Glutamyl Transpeptidase Activity	222
ANDRE J. BESTER, MARTIN PAMMENTER, WIELAND GEVERS, and PIETER VAN JAARSVELD. Translation of 33S mRNA, Prepared from Bovine Thyroid Glands, into Thyroglobulin-Like Protein in a Reticulocyte Lysate Cell-Free System	230
AKEMI MATSUNO-YAGI and YASUO MUKOHATA. Two Possible Roles of Bacteriorhodopsin; a Comparative Study of Strains of <i>Halobacterium halobium</i> Differing in Pigmentation	237
S. G. RHEE, J. J. VILAFRANCA, P. B. CHOCK, and E. R. STADTMAN. Direct Evidence for Separate Binding Sites for L-Glu and Amino Acid Feedback Inhibitors on Unadenylylated Glutamine Synthetase from <i>E. coli</i>	244
DANIEL C. PARK and JAMES L. WITTLIFF. Assessment of "Activation" of Estrogen Receptors in Lactating Mammary Gland Using DNA-Cellulose Binding	251
C. A. YU, L. YU, and TSOO E. KING. The Existence of an Ubiquinone Binding Protein in the Reconstitutively Active Cytochrome <i>b-c₁</i> Complex	259
C. ABAD-ZAPATERO, J. L. FOX, and M. L. HACKERT. The Quaternary Structure of a Unique Phycobiliprotein: B-Phycocerythrin from <i>Porphyridium cruentum</i>	266
MEAD M. MCCABE, RONALD M. HAMELIK, and ERIC E. SMITH. Purification of Dextran-Binding Protein from Cariogenic <i>Streptococcus mutans</i>	273
GARY M. DECAD, D. P. H. HSIEH, and JAMES L. BYARD. Maintenance of Cytochrome P-450 and Metabolism of Aflatoxin B ₁ in Primary Hepatocyte Cultures	279
ROBERT H. ECKEL, WILFRED Y. FUJIMOTO, and JOHN D. BRUNZELL. Development of Lipoprotein Lipase in Cultured 3T3-L1 Cells	288
NANCY LEWIS BAENZIGER, MARGARET J. DILLENDER, and PHILIP W. MAJERUS. Cultured Human Skin Fibroblasts and Arterial Cells Produce a Labile Platelet-Inhibitory Prostaglandin	294
S. H. QUARFORDT, H. HILDERMAN, M. R. GREENFIELD, and F. A. SHELBURNE. The Effect of Human Arginine Rich Apoprotein on Rat Adipose Lipoprotein Lipase	302
SAILEN MOOKERJEE, J. WAYNE MARSHALL, JOAN M. COLLINS, and SAMUEL RATNAM. Elevated Sialyltransferase Activity in the Serum of Colchicine Treated Rats	309
KATHRYN M. IVANETICH and JEAN J. BRADSHAW. An Investigation of the Degradation of Cytochrome P-450 Hemoproteins Using SDS Gel Electrophoresis	317
PIERRE BIANCO and JEAN HALADJIAN. Study of Two Forms of Ferredoxin from <i>Desulfovibrio gigas</i> by Differential Pulse Polarography	323
S. FUJITA and J. PEISACH. Electron Transfer between Liver Microsomal Cytochrome <i>b₅</i> and Cytochrome P-450 in the Azo Reductase Reaction	328
PETER K. CHIANG, GIULIO L. CANTONI, DAVID A. RAY, and JOHN P. BADER. Reduced Levels of Adenosine Deaminase in Chick Embryo Fibroblasts Transformed by Rous Sarcoma Virus	336
SALIL K. NIYOGI, HARRY RATRIE III, and ALOK K. DATTA. Effect of <i>Escherichia coli</i> DNA Binding Protein on the Transcription of Single-Stranded Phage M13 DNA by <i>Escherichia coli</i> RNA Polymerase	343
A. C. KATO, P. LEFRESNE, Y. BERWALD-NETTER, J. C. BEAUJOUAN, J. GLOWINSKI, and F. GROS. Choline Stimulates the Synthesis and Accumulation of Acetate in a Cholinergic Neuroblastoma Clone	350
LON J. VANWINKLE and DANICA DABICH. Transport of Naturally Occurring Amino Acids and alpha-Amino Isobutyric Acid by Normal and Diapausing Mouse Blastocysts	357
MABEL HOKIN-NEAVEVERSON, KENNETH SADEGHIAN, DOUGLAS W. HARRIS, and JAMES S. MERRIN. Synthesis of CDP-Diglyceride from Phosphatidylinositol and CMP	364
WILLIAM R. ANDERSON, JR., WILLI FRICK, G. DOYLE DAVES, JR., DOUGLAS F. BAROFSKY, ISOMARO YAMAGUCHI, DING CHANG, KARL FOLKERS, and SUNE ROSELL. Mass Spectra of Underivatized Peptide Amides Related to Substance P	372
C. GAUDIN, B. MARTY, A. BELAICH, J. C. SARI, and J. P. BELAICH. Microcalorimetric Study of Substrate Fixation on the Leucine-Isoleucine-Valine-Binding Protein from <i>Escherichia coli</i>	377
ULRIKE D. SCHMIDT and H. HASKO PARADIES. The Structure of the ϵ -Subunit from the Chloroplast Coupling Factor (CF ₁) Studied by Means of Small Angle X-Ray Scattering and Inelastic Light Scattering	383
M. I. DOLIN. DPNH Peroxidase: Effector Activities of DPN ⁺	393
W. K. YEH, D. T. GIBSON, and TE-NING LIU. Toluene Dioxygenase: A Multicomponent Enzyme System	401
JOHN C. M. TSIBRIS and PETER M. MCGUIRE. Microsomal Activation of Estrogens and Binding to Nucleic Acids and Proteins	411
TOSHIAKAZU NOGUCHI, KIYOSHIGE TAKAYAMA, and MINORU NAKANO. Conversion of 2,5-Dimethylfuran to 2-Hydroxy-5-Hydroperoxy-2,5-Dimethyldihydrofuran, a True ¹ O ₂ -Derived Reaction in Aqueous ¹ O ₂ Generating Systems	418
GERRIT A. VELDINK, G. JAN GARSEN, STEVEN SLAPENDEL, JOHANNES F. G. VLEGENTHART, and JAN BOLDINGH. Chemiluminescence during Lipoygenase-Catalysed Oxygenation of Linoleic Acid	424
J. M. JACOBS and N. J. JACOBS. The Late Steps of Anaerobic Heme Biosynthesis in <i>E. coli</i> : Role for Quinones in Protoporphyrinogen Oxidation	429
TADASHI TAI, KATSUKO YAMASHITA, and AKIRA KOBATA. The Substrate Specificities of Endo- β -N-acetylglucosaminidases C ₁₁ and H	434

ANNE BAROIN, DAVID D. THOMAS, BEVERLY OSBORNE, and PHILIPPE F. DEVAUX. Saturation Transfer Electron Paramagnetic Resonance on Membrane-Bound Proteins. I—Rotational Diffusion of Rhodopsin in the Visual Receptor Membrane	442
ANNIE ROUSSELET and PHILIPPE F. DEVAUX. Saturation Transfer Electron Paramagnetic Resonance on Membrane-Bound Proteins. II—Absence of Rotational Diffusion of the Cholinergic Receptor Protein in <i>Torpedo marmorata</i> Membrane Fragments	448
ZVI BAR-SHAVIT, ITZHAK OFEK, RACHEL GOLDMAN, DAVID MIRELMAN, and NATHAN SHARON. Mannose Residues on Phagocytes as Receptors for the Attachment of <i>Escherichia coli</i> and <i>Salmonella typhi</i>	455
S. SUBRAMANIAN and PHILIP D. ROSS. Calorimetric Investigation of NAD Binding to Some Dehydrogenases	461
ERRATA. Volume 77, Number 1, July 11, 1977, Jose M. Mato, Frans A. Krens, Peter J. M. van Haastert, and Theo M. Konijn, "Unified Control of Chemotaxis and cAMP Mediated cGMP Accumulation by cAMP in <i>Dictyostelium discoideum</i> ," pp. 399-402	467
Volume 77, Number 1, July 11, 1977, M. L. Groves and R. Greenberg, "Bovine Homologue of β_2 -Microglobulin Isolated from Milk," pp. 320-327	467

Volume 78, Number 2, September 23, 1977

AUTHOR INDEX, Volume 78, Number 2, September 23, 1977	ii
O. P. SHARMA. Age Related Changes in Lipid Peroxidation in Rat Brain and Liver	469
JUDITH K. MARQUIS, DANA C. HILT, and HENRY G. MAUTNER. Direct Binding Studies of ^{125}I - α -Bungarotoxin and ^3H -Quinuclidinyl Benzilate Interaction with Axon Plasma Membrane Fragments. Evidence for Nicotinic and Muscarinic Binding Sites	476
A. L. MOORE, C. JACKSON, B. HALLIWELL, J. E. DENCH, and D. O. HALL. Intramitochondrial Localisation of Glycine Decarboxylase in Spinach Leaves	483
L. J. LIS, S. C. GOHEEN, and J. W. KAUFFMAN. Raman Spectroscopy of Fatty Acid Blodgett-Langmuir Multilayer Assemblies	492
TAKEO IMAI and JIRO TOBARI. FAD-Dependent Malate Dehydrogenase from <i>Mycobacterium</i> sp. Strain Takeo: A Possible Role of Phospholipid	498
JOHN HUMPHRIES, YIEH-PING WAN, KARL FOLKERS, and CYRIL Y. BOWERS. On the Importance of Position One of Ovulation Inhibitors, as Based on Studies on [D-Phe ² , Pro ³ , D-Phe ⁶]-LHRH	506
M. T. LIN and CH. V. RAO. [^3H] Prostaglandins Binding to Dispersed Bovine Luteal Cells: Evidence for Discrete Prostaglandin Receptors	510
G. SHANMUGAM. Rapid Metabolism of Moloney Leukemia Virus Precursor Polypeptides in Virus Infected Swiss Mouse Embryo Cells	517
M. MIHOVILOVIC, T. NOWAK, M. A. RAFTERY, and M. MARTINEZ-CARRION. Binding Studies of Mn^{+2} to Isolated Acetylcholine Receptor as a Probe for Cation-Receptor Interaction	525
YOSHIHIRO MASUI, NAOYOSHI CHINO, SHUMPEI SAKAKIBARA, TAKAHARU TANAKA, TAEKO MURAKAMI, and HIROSHI KITA. Synthesis of the Mating Factor of <i>Saccharomyces cerevisiae</i> and Its Truncated Peptides: The Structure-Activity Relationship	534
TED T. SAKAI and SEYMOUR S. COHEN. Uptake and Aminoacylation of Exogenous <i>Escherichia coli</i> tRNA by Mouse Fibroblasts	539
D. L. VENTON, C. K. CHAN, CHARLES PASSO, FRANCIS M. RACINE, and PAUL W. MORRIS. Inhibition of Nucleotidyl Transferase Enzymes by Metal Ions in Combination with 5-Amino-1-Formylisoquinoline Thiosemicarbazone	547
ROBERT A. DARROW and RICHARD R. KNOTTS. Two Forms of Glutamine Synthetase in Free-Living Root-Nodule Bacteria	554
WILLIAM R. MARKESBERY and D. ALLAN BUTTERFIELD. Scanning Electron Microscopy Studies of Erythrocytes in Huntington's Disease	560
ALICE M. WERTHEIMER and M. S. KAULENAS. GDP Kinase Activity Associated with Salt-Washed Ribosomes	565
RICHARD N. LOLLEY, BRUCE M. BROWN, and DEBORA B. FARBER. Protein Phosphorylation in Rod Outer Segments from Bovine Retina: Cyclic Nucleotide-Activated Protein Kinase and Its Endogenous Substrate	572
A. ABOU-JAOUDE, M. CHIPPAUX, M. C. PASCAL, and F. CASSE. Formate: A New Electron Donor for Nitrite Reduction in <i>Escherichia coli</i> K12	579
MARVIN D. BREGMAN and DANIEL LEVY. Labeling of Glucagon Binding Components in Hepatocyte Plasma Membranes	584
OPENDRA K. SHARMA and YOSHIYUKI KUCHINO. Infidelity of Translation of Encephalomyocarditis Viral RNA with tRNA from Human Malignant Trophoblastic Cells	591
MARA COSTA, LAURA PECCI, BERNARDO PENSA, and CARLO CANNELLA. Hydrogen Peroxide Involvement in the Rhodanese Inactivation by Dithiothreitol	596
J. W. PARK and B. CHAKRABARTI. Acid-Base and Optical Properties of Heparin	604
YOSHINAO KATSUMATA, FUMIO TANAKA, MASAKO HAGIHARA, and KUNIO YAGI. Changes in Membrane Fluidity of Erythrocytes during Cell Maturation	609
FREESIA L. HUANG, SHYY-HWA TAO, and WALTER H. GLINSMANN. Multiple Forms of Protein Phosphatase Inhibitors in Mammalian Tissues	615

WILLIAM P. TEW. Use of the Coulombic Interactions of the Lanthanide Series to Identify Two Classes of Ca^{2+} Binding Sites in Mitochondria	624
ELLSON Y. CHEN and BRUCE A. ROE. Sequence Studies on Human Placenta tRNA ^{Val} : Comparison with the Mouse Myeloma tRNA ^{Val}	631
FRANZ ENGELMANN. Undegraded Vitellogenin Polysomes from Female Insect Fat Bodies	641
P. S. RAO, R. G. EVANS, and H. S. MUELLER. Experimental Determination of Activation of CK-Isoenzymes in Human Serum and Their Significance	648
PAUL SZABO, THERESA CAMPANA, and MARCELLO SINISCALCO. Radioimmune Assay for the Xg(a) Surface Antigen at the Individual Red Cell Level	655
KIYOMI SATO, FUSAKO IMAI, ICHIRO HATAYAMA, and ROBERT I. ROELOFS. Characterization of Glycogen Phosphorylase Isoenzymes Present in Cultured Skeletal Muscle from Patients with McArdle's Disease	663
M. A. MARCUS, A. LEWIS, E. RACKER, and H. CRESPI. Physiological and Structural Investigations of Bacteriorhodopsin Analogs	669
JEAN-PIERRE PERCHELLET and RAMESHWAR K. SHARMA. Metabolic Regulation of Steroidogenesis in Isolated Adrenocortical Carcinoma Cells. ACTH Regulation of Guanosine Cyclic 3':5'-Monophosphate Levels	676
GEORGE BOGUSLAWSKI, WILLIAM S. OETTING, and DEAN A. STETLER. Further Characterization of a Ribonucleotide-Polymerizing Enzyme from <i>Histoplasma capsulatum</i> . II. Possible Role in Cellular Metabolism	684
ROBERT I. MISBIN. Binding of ^3H -Insulin to Cultured Human Lymphocytes—Further Evidence for Heterogeneity of Insulin Receptors or Negative Cooperativity	690
KATSUMI YOSHIDA and PAUL J. DAVIS. Binding of Thyroid Hormone by Erythrocyte Cytoplasmic Proteins	697
BARRY C. STARCHER, JUDY A. MADARAS, and ARNOLD S. TEPPER. Lysyl Oxidase Deficiency in Lung and Fibroblasts from Mice with Hereditary Emphysema	706
W. TRUPPE, R. BASNER, K. VON FIGURA, and H. KRESSE. Uptake of Hyaluronate by Cultured Cells	713
GEORGE GLAUBIGER and ROBERT J. LEFKOWITZ. Elevated beta-Adrenergic Receptor Number after Chronic Propranolol Treatment	720
MARY L. SKOTNICKI and BARRY G. ROLFE. Interaction between the Nitrate Respiratory System of <i>Escherichia coli</i> K12 and the Nitrogen Fixation Genes of <i>Klebsiella pneumoniae</i>	726
DAN KING, DAVID L. ERBES, and MARTIN GIBBS. Inhibition of Ferrieyanide Reduction in Chloroplast Particles by Anaerobicity	734
ISAO MORISHIMA, TOSHIRO INUBUSHI, SABURO NEYA, SATOSHI OGAWA, and TEIJIRO YONEZAWA. ^{15}N Magnetic Resonance Studies of the Binding of ^{15}N -Labeled Cyanide to Various Hemoproteins	739
M. K. AGARWAL, F. COUPRY, and M. PHILIPPE. Physiological Activity and Receptor Binding of 9 α -Fluorohydrocortisone	747
J. LUISETTI, H. MOHWALD, and H. J. GALLA. Paramagnetic Fluorescence Quenching in Chlorophyll a Containing Vesicles: Evidence for the Localization of Chlorophyll	754
C. H. A. SEITER, S. G. ANGELOS, and R. A. PERREAULT. An EPR Signal from the "Invisible" Copper of Cytochrome Oxidase	761
YOSHIHIRO MATSUDA, HIROFUMI OGAWA, SACHIKO FUKUTOME, HIROSHI SHIRAKI, and HACHIRO NAKAGAWA. Adenylosuccinate Synthesis in Rat Liver: The Existence of Two Types and Their Regulatory Roles	766
M. KURZMACK, S. VERJOVSKI-ALMEIDA, and G. INESI. Detection of an Initial Burst of Ca^{2+} Translocation in Sarcoplasmic Reticulum	772
KENNETH A. MARX. Differential Condensation of Mouse DNA Families in Chromatin: Accessibility to Nuclease Probes	777
ETHAN HACK and JOHN D. KEMP. Comparison of Octopine, Histopine, Lysopine, and Octopinic Acid Synthesizing Activities in Sunflower Crown Gall Tissues	785
GARY L. JOHNSON and HENRY R. BOURNE. Influence of Cholera Toxin on the Regulation of Adenylate Cyclase by GTP	792
NANCY D. RICHERT and ROBERT J. RYAN. Protease Inhibitors Block Hormonal Activation of Adenylate Cyclase	799
SATOSHI NAKAMURA and KUNIMASA KOGA. Alteration of Thermal Stability of Glucose Oxidase Associated with the Redox States	806
G. SCHAFER and S. PENADES. Photolabeling of the Adenine Nucleotide Carrier by 8-Azido-ADP	811
NAOKAZU NAGATA, YURIKO ONO, and NARIMICHI KIMURA. Inhibition by Cholera Toxin of Parathyroid Hormone-Induced Calcium Release from Bone in Culture	819
JOHN D. WADE, CLAIRE O. PULLIN, FRANK M. NG, and JOSEPH BORNSTEIN. The Synthesis and Hyperglycaemic Activity of the Amino Acid Sequence 172-191 of Human Growth Hormone	827
DENNIS PISZKIEWICZ, TSAFRIRA RAND-MEIR, IDA THEODOR, and STANLEY M. PARSONS. The Amino Terminal Sequence of ATP-Phosphoribosyltransferase, the First Gene Product of the Histidine Operon	833
K. SOMA SUNDARAM and T. A. VENKITASUBRAMANIAN. Tryptophan Uptake by <i>Mycobacterium tuberculosis</i> H ₃₇ Rv—Inhibition by Isoniazid	839
ERRATUM. Volume 77, Number 1, July 11, 1977, John A. Badwey and Edward W. Westhead, "Activation of Human Erythrocyte Pyruvate Kinase by Hexose Bisphosphates," pp. 275-281	846

Volume 78, Number 3, October 10, 1977

AUTHOR INDEX, Volume 78, Number 3, October 10, 1977	ii
A. W. WOOD, W. LEVIN, D. RYAN, P. E. THOMAS, H. YAGI, H. D. MAH, D. R. THAKKER, D. M. JERINA, and A. H. CONNEY. High Mutagenicity of Metabolically Activated Chrysene 1,2 Dihydrodiol: Evidence for Bay Region Activation of Chrysene	847
A. ALAN PERMUTT and ALAN ROUTMAN. Proinsulin Precursors in Isolated Rat Pancreatic Islets	855
MICHAEL SINENSKY. Isolation of a Mammalian Cell Mutant Resistant to 25-Hydroxy Cholesterol	863
MICHIHIKO SATO, NOBUKO OHISHI, MORIMITSU NISHIKIMI, and KUNIO YAGI. Proteins with Covalently-Bound Flavin in Rat Liver Mitochondria	868
ANN DELL and HOWARD R. MORRIS. A Mass Spectrometric Strategy for the Rapid Screening of Homologous Proteins: Studies on a <i>Pseudomonas</i> Azurin	876
ROBERT ROGNSTAD. Futile Hydrogen Cycling in Liver Cells from Triiodothyronine Treated Rats	881
AJIT S. BHOWN and A. F. S. A. HABEEB. Structural Studies on ϵ -Prototoxin of <i>Clostridium perfringens</i> Type D. Localization of the Site of Tryptic Scission Necessary for Activation to ϵ -Toxin	889
JOAN M. CAUGHEY, WILLIAM V. LUMB, and WINSLOW S. CAUGHEY. Detection and Characterization of Nitrous Oxide Sites in the Brain of a Dog under Halothane-N ₂ O Anesthesia by Infrared Spectroscopy	897
A. GAYLER HARFORD and CHRISTINE I. ZUCHOWSKI. Different Structures Associated with Ribosomal and Nonribosomal DNAs in <i>Drosophila melanogaster</i>	904
TOMIKO ASANO and HIROYOSHI HIDAKA. Purification of Guanylate Cyclase from Human Platelets and Effect of Arachidonic Acid Peroxide	910
HENRY A. SASAME, MATTHEW M. AMES, and SIDNEY D. NELSON. Cytochrome P-450 and NADPH Cytochrome C Reductase in Rat Brain: Formation of Catechols and Reactive Catechol Metabolites	919
HUNTINGTON F. WILLARD and LEON E. ROSENBERG. Inherited Deficiencies of Human Methylmalonyl CoA Mutase Activity: Reduced Affinity of Mutant Apoenzyme for Adenosylcobalamin	927
ROBERT B. TRIMBLE and FRANK MALEY. The Use of endo- β -N-Acetylglucosaminidase H in Characterizing the Structure and Function of Glycoproteins	935
STEVEN GUTTERIDGE, DARYL B. WINTER, WALTER J. BRUYNINCKX, and HOWARD S. MASON. Localization of Cu and Heme a on Cytochrome c Oxidase Polypeptides	945
ELENA CIEJEK, JEREMY THORNER, and MICHAEL GEIER. Solid Phase Peptide Synthesis of a-Factor, a Yeast Mating Pheromone	952
KATHLEEN J. SWEADNER. Crosslinking and Modification of Na,K-ATPase by Ethyl Acetimidate	962
R. G. OMRAN. The Direct Involvement of Hydrogen Peroxide in Indoleacetic Acid Inactivation	970
A. NIMROD, E. BEDRAK, and S. A. LAMPRECHT. Appearance of LH-Receptors and LH-Stimulable Cyclic AMP Accumulation in Granulosa Cells during Follicular Maturation in the Rat Ovary	977
CHARLES D. BOYD, PATRICIA THOMPSON, and W. FITSCHEN. The Product of Ribosome-Associated RNA-Dependent RNA Polymerase in Immature Chicken Erythrocytes	985
A. J. LAWSON, D. D. WALL, J. W. OSBORNE, and R. H. STEVENS. Adenosine 3',5'-Cyclic Monophosphate Phosphodiesterase Activities in the X-Irradiation Induced Rat Small Bowel Adenocarcinoma	992
T. P. LEE and CHARLES E. REED. Effects of Steroids on the Regulation of the Levels of Cyclic AMP in Human Lymphocytes	998
YUZO YOSHIDA, YURI AOYAMA, HIROSHI KUMAOKA, and SACHIKO KUBOTA. A Highly Purified Preparation of Cytochrome P-450 from Microsomes of Anaerobically Grown Yeast	1005
JOHN DONLON and SEYMOUR KAUFMAN. Modification of the Multiple Forms of Rat Hepatic Phenylalanine Hydroxylase by <i>in Vitro</i> Phosphorylation	1011
MICHAEL H. KLAPPER. The Independent Distribution of Amino Acid near Neighbor Pairs into Polypeptides	1018
RONALD T. BORCHARDT, YIH SHIONG WE, and BI SHIA WU. S-Adenosyl-L-Homocysteine Dialdehyde: An Affinity Labeling Reagent for Histamine-N-Methyltransferase	1025
CLIVE SANDERS. A Method for the Fractionation of the High-Mobility-Group Non-Histone Chromosomal Proteins	1034
ULRIKE D. SCHMIDT and H. HASKO PARADIES. The Structure of the δ -Subunit from Chloroplast Coupling Factor (CF ₁) in Solution	1043
CARLOS SOLER-ARGILAGA, ROBERT L. RUSSELL, and MURRAY HEIMBERG. Reciprocal Relationship between Uptake of Ca ⁺⁺ and Biosynthesis of Glycerolipids from sn-Glycerol-3-Phosphate by Rat Liver Microsomes	1053
ARNOLD M. ROSEN and DAVID M. GELLER. Chicken Microsomal Albumin: Amino Terminal Sequence of Chicken Proalbumin	1060
RONALD T. BORCHARDT and CHARLES S. SCHASTEEN. Phenol-Sulfotransferase Inactivation by 2,3-Butanedione and Phenylglyoxal: Evidence for an Active Site Arginyl Residue	1067
SHOMPA DATTA and SALIL C. DATTA. Rapid Thin Layer Chromatographic Separation of para-Phenylazophenyl Thiohydantoins of Amino Acids	1074
JOSEPH M. WU, CHI P. CHEUNG, and ROBERT J. SUHADOLNIK. Differential Inhibition with Partially Purified and Endogenous Rabbit Reticulocyte Globin mRNA by 7-Methylguanosine 5'-Monophosphate	1079
ELPIDIO A. DOSADO, ABRAHAM W. HSIE, and FRED SNYDER. Modification of Phospholipid Metabolism in Dibutyl- γ -cAMP-Mediated Morphological Conversion of CHO Cells	1087

A. CHRISTIE KING and WILLIAM A. FRAZIER. Reciprocal Periodicity in Cyclic AMP Binding and Phosphorylation of Differentiating <i>Dictyostelium discoideum</i> Cells	1093
KASPAR von MEYENBURG and HIROSHI NIKAI DO. Outer Membrane of Gram-Negative Bacteria. XVII. Specificity of Transport Process Catalyzed by the λ -Receptor Protein in <i>Escherichia coli</i>	1100
SANTANU DASGUPTA and SANKAR MITRA. The Role of DNA Polymerase I-Associated 5'-Exonuclease in Replication of Coliphage M13 Replicative-Form DNA	1108
LASZLO GRAF, AGNES KENESSEY, ILONA BERZETEI, and ANDRAS Z. RONAI. Demonstration of β -Lipotropin Activating Enzyme in Porcine Pituitary	1114
DONALD YAMASHIRO, LIANG-FU TSENG, and CHOH HAO LI. [n-Thr ² ,Thz ⁵]- and [n-Met ² ,Thz ⁵]-Enkephalinamides: Potent Analgesics by Intravenous Injection	1124
M. C. OERLEMANS, M. M. GEELHOED-MIERAS, and W. C. HULSMANN. On the Organ Specificity of Neutral Glycerolester Hydrolase of Various Tissues; an Immunological Study	1130

Volume 78, Number 4, October 24, 1977

AUTHOR INDEX, Volume 78, Number 4, October 24, 1977	ii
WESLEY C. PIERSON and DOMINICK L. CINTI. Temperature-Dependent and -Induced Spectral Characteristics and Transitions of Liver Microsomes	1139
OLLE LJUNGSTRÖM and PIA EKMAN. Glucagon-Induced Phosphorylation of Pyruvate Kinase (Type L) in Rat Liver Slices	1147
EDWARD G. HAYMAN, BIJAY K. PAL, MICHAEL M. C. LAI, and PRADIP ROY-BURMAN. Major Phosphoprotein of Avian Sarcoma Virus: Peptide Analysis of the Various Charged Species	1156
ROBERT H. STELLWAGEN, ROCHELLE D. SAILOR, and KULWANT K. KOHLI. Acceleration of the Degradation of Tyrosine Aminotransferase in Rat Hepatoma (HTC) Cells by Inhibitors of Cyclic Nucleotide Phosphodiesterase	1162
W. THOMAS SHIER. Inhibition of Prostaglandin Synthesis by Lysolecithin	1168
CECILIA HIDALGO and DAVID D. THOMAS. Heterogeneity of SH Groups in Sarcoplasmic Reticulum	1175
BO HÖJEBERG and JAN RYDSTRÖM. Purification and Molecular Properties of Reconstitutionally Active Nicotinamide Nucleotide Transhydrogenase from Beef Heart Mitochondria	1183
SHERMAN R. DICKMAN and DAVID J. BOLL. Differential Purification of Methionine-tRNA Synthetase and Lysine-tRNA Synthetase from Rabbit Liver	1191
KIYOSHI GODA, TAKASHI UEDA, and YAHITO KOTAKE. Kinetic Studies of the Reduction of Methemoglobin by 5-Hydroxyanthranilic Acid, Tryptophan Metabolite	1198
CHRISTINE K. CARRICO, LINDA S. CUNNINGHAM, and ALAN C. SARTORELLI. Effects of 6-Thioguanine-Containing RNA on <i>In Vitro</i> Protein Synthesis	1204
NANCY LEE, MASAYORI INOUE, and PAUL C. LAUTERBUR. ¹⁹ F- and ¹³ C-NMR Studies of a Specifically Labelled Lipoprotein in the <i>Escherichia coli</i> Membrane	1211
THOMAS P. CHIRPICH. Factors Affecting Terminal Deoxynucleotidyl Transferase Activity in Cacodylate Buffer	1219
GEORGE J. SCHROEPFER, JR., DANIEL MONGER, ALLAN S. TAYLOR, JEFFREY S. CHAMBERLAIN, EDWARD J. PARISH, ALEMKA KISIC, and ANDREW A. KANDUTSCH. Inhibitors of Sterol Synthesis. Hypocholesterolemic Action of Dietary 5 α -Cholest-8(14)-EN-3 β -OL-15-ONE in Rats and Mice	1227
JORGE LIMON-LASON, MIGUEL LARA, BERTHA RESENDIZ, and JAIME MORA. Regulation of Glutamine Synthetase in Fed-Batch Cultures of <i>Neurospora Crassa</i>	1234
D. R. GIBSON, J. M. TALENT, and R. W. GRACY. Affinity Labeling of Human Glucosephosphate Isomerase with N-Bromoacetyl ethanolamine Phosphate	1241
MAGED YOUNES and ULRICH WESER. Superoxide Dismutase Activity of Copper-Penicillamine: Possible Involvement of Cu(I) Stabilized Sulphur Radical	1247
ARTHUR I. CEDERBAUM, ELISA DICKER, EMANUEL RUBIN, and GERALD COHEN. The Effect of Dimethylsulfoxide and other Hydroxyl Radical Scavengers on the Oxidation of Ethanol by Rat Liver Microsomes	1254
R. DABROWSKI, D. AROMATORIO, J. M. F. SHERRY, and D. J. HARTSHORNE. Composition of the Myosin Light Chain Kinase from Chicken Gizzard	1263
JOHN I. TOOHEY. Methylthio Group Cleavage from Methylthioadenosine. Description of an Enzyme and Its Relationship to the Methylthio Requirement of Certain Cells in Culture	1273
KOICHIRO YOSHIHARA, TOMOTAKA HASHIDA, HIROKO YOSHIHARA, YASU HARU TANAKA, and HAJIME OHGUSHI. Enzyme-Bound Early Product of Purified Poly (ADP-Ribose) Polymerase	1281
MICHEL LAURENT and FRANÇOIS SEYDOUX. Influence of Phosphate on the Allosteric Behavior of Yeast Phosphofructokinase	1289
ARA TOURIAN and WU-YEN HUNG. Membrane Abnormalities of Huntington's Chorea Fibroblasts in Culture	1296
RODERICK A. McDONALD and THOMAS D. GELEHRTER. Glucocorticoid Inhibition of Amino Acid Transport in Rat Hepatoma Cells	1304
MAX COSTA. Endogenous Protein Kinase Inhibitor Levels Regulate Changes in Specific Activity of Protein Kinase in Quiescent Cells Stimulated to Proliferate	1311
JOSÉ A. LOPEZ DE CASTRO, FERNANDO VIVANCO, and FERNANDO ORTIZ. Fc Fragment of Human Immunoglobulin G: Reduction and Carboxymethylation of Inter-Chain Disulfide Bonds Enhances Complement Activating Capacity	1319

EDWARD R. B. McCABE, PAUL V. FENNESSEY, MARY ANNE GUGGENHEIM, BARBARA S. MILES, WILLIAM W. BULLEN, DONALD J. SCEATS, and STEPHEN I. GOODMAN. Human Glycerol Kinase Deficiency with Hyperglycerolemia and Glyceroluria	1327
PAUL M. KRAEMER. Heparin Releases Heparan Sulfate from the Cell Surface	1334
M. A. PORZIO and A. M. PEARSON. Premeromyosin - An Initial Product of Trypsin Proteolysis in Isolated Myofibrils	1341
AB TULP and MELS SLUYSER. Different Incorporation of Glucocorticoid Hormone into Diploid and Tetraploid Liver Nuclei	1347
SERGIO A. JIMENEZ, REZA I. BASHEY, MILTON BENDITT, and RONALD YANKOWSKI. Identification of Collagen ₁ (I) Trimer in Embryonic Chick Tendons and Calvaria	1354
MASAKI SHIODA, HIROSHI NAGANO, and YOSHITAKE MANO. Cytoplasmic Location of DNA Polymerase- α , and - β of Sea Urchin Eggs	1362
DAVID S. SHREVE and H. RICHARD LEVY. On the Molecular Weight of Human Glucose 6-Phosphate Dehydrogenase	1369
FRANCIS G. CAREY and QUENTIN H. GIBSON. Reverse Temperature Dependence of Tuna Hemoglobin Oxygenation	1376
OFRA WOLF, RONALD ZEMELL, YIGAL BURSTEIN, and ISRAEL SCHECHTER. Partial Sequence of Immunoglobulin Light-Chain Isolated from Purified Plasma Membranes of Mouse Myeloma Cells	1383
CARMEN OSUNA, JAIME RENART, and JESUS SEBASTIAN. Proteolytic Origin of a Modified Form of RNA Polymerase I from <i>Artemia salina</i> Larvae	1390
T. J. PLAYER, D. J. MILLS, and A. A. HORTON. Age-Dependent Changes in Rat Liver Microsomal and Mitochondrial NADPH-Dependent Lipid Peroxidation	1397
A. J. BAILEY, M. HELENA RANTA, A. C. NICHOLLS, S. M. PARTRIDGE, and D. F. ELSDEN. Isolation of α -amino Adipic Acid from Mature Dermal Collagen and Elastin. Evidence for an Oxidative Pathway in the Maturation of Collagen and Elastin	1403
ISMO VIRTANEN. Identification of Concanavalin A Binding Glycoproteins of Rat Liver Cell Nuclear Membranes	1411
HAJIME ISHIKAWA. RNA Synthesis in Aphids, <i>Lachnus Tropicalis</i>	1418
ANA JONAS, SUSAN M. DRENGLER, and ANGELO M. SCANU. Fluorescence Polarization Studies of Human and Rhesus A-I Apolipoproteins and Their Complexes with Phosphatidylcholine	1424
ERRATA. Volume 77, Number 4, August, 1977, Stephen G. Mayhew, Reinko Abels, and Roelof Platenkamp. "The Production of Dithionite and SO ₂ ⁻ by Chemical Reaction of (Bi) sulphite with Methyl Viologen Semiquinone," pp. 1397-1403	1431
Volume 77, Number 4, August 22, 1977, A. Das and N. K. Gupta, "Protein Synthesis in Rabbit Reticulocytes XX: A Supernatant Factor (TDI) Inhibits Ternary Complex (Met-tRNA _f • EIF-I • GTP) Dissociation and Met-tRNA _f Binding to 40s Ribosomes," pp. 1307-1316	1432
AUTHOR INDEX FOR VOLUME 78	1442



Digitized by the Internet Archive
in 2026

Information for Contributors

BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS is devoted to the rapid dissemination of timely and significant observations in the diverse fields of modern experimental biology. Manuscripts submitted should be so written as to emphasize clearly the novel aspects of the information reported.

Original papers only will be considered. Manuscripts are accepted for review with the understanding that the same work has not been and will not be published nor is presently submitted elsewhere, and that all persons listed as authors have given their approval for the submission of the paper; further, that any person cited as a source of personal communications has approved such citation. Written authorization may be required at the Editor's discretion. Articles and any other material published in BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS represent the opinions of the author(s) and should not be construed to reflect the opinions of the Editor(s) and the Publisher.

Manuscripts in duplicate may be sent to any one of the editors whose names and addresses are listed on the inside front cover.

To ensure rapid and accurate publication, it is essential that manuscripts conform to the instructions which follow. Manuscripts which are not in accordance with these specifications may be returned.

Preparation of Manuscripts

Article length should not exceed 5 typewritten pages, double-spaced on 8.5 X 11 in. high quality paper (the complete manuscript, including space occupied by figures and tables, should not exceed 8 pages).

Summary. Each article must be preceded by a brief summary, typed single-spaced, not exceeding 10 lines (approximately 100–150 words). This paragraph should adequately summarize the pertinent findings of the paper.

Typing. Articles are reproduced directly from the submitted manuscript as camera-ready copy. Manuscripts must therefore be typewritten on good quality white bond paper. A black silk or carbon typewriter ribbon should be used. Special care should be taken to ensure a sharp clean impression of letters throughout. Use of an electric typewriter is strongly recommended. Erasures should be avoided. Care must also be taken to avoid errors in spelling, word division and punctuation. **No changes may be made in manuscripts after acceptance.**

Manuscripts should be double-spaced on one side of the sheet; **methods, references, footnotes and figure legends should be single-spaced.** Typing area of the page must be as close as possible to 6.5 in. wide and 9.5 in. long.

Symbols and Abbreviations defined in the IUPAC-IUB Document No. 1 (*Arch. Biochem. Biophys.* (1966) 115, 1–12) may be used without definition. Use of all other abbreviations and symbols is to be avoided. When abbreviations are essential, they should be consistent with the form and style of the above document and **must be defined in a single footnote and typed on a separate page**, rather than in the text. Such abbreviations **must not** be used in the Summary.

Enzyme names should not be abbreviated except when the substrate has an approved abbreviation (e.g., ATPase). Use the Enzyme Commission ("EC") code number when available.

Isotopes should be styled following the recommendations of the IUB Commission of Editors of Biochemical Journals. The symbol of the isotope introduced should be placed in square brackets directly attached to the front of the name (e.g., [³²P]CMP). Note that the isotope number should only be used as a (superior) prefix to the atomic symbol, not to an abbreviation.

In the Methods section, authors should draw attention to any particular chemical or biological hazards that may be involved in carrying out the experiments described. Any relevant safety precautions should be described; if an accepted code of practice has been followed, a reference to the relevant standards should be given.

For further information regarding nomenclature authors are advised to consult the Instructions to Authors of the **Archives of Biochemistry and Biophysics** (1974) 160, iii-xii. Reprints are available from the Publisher.

Footnotes, references, and figure legends should be typed single-spaced on separate pages.

Illustrations and Tables. **Do not attempt to insert figures, figure legends or tables into the text.** This will be done by the Publisher.

All drawings should be clearly labeled in black ink in a manner suitable for direct reproduction (Leroy lettering size 120 or 140). Do not use press-on lettering; typewritten lettering is not acceptable.

Figures will be reduced to fit within the type area of the page (approximately 5 X 8 in.); the original drawings should be no larger than 8.5 X 11 in.

Glossy photographs of drawings are acceptable provided they are sharp, clear prints with an even *black* density.

Mathematical or chemical symbols that cannot be typed should be inked in carefully in black. Structural formulas should be drawn in black ink.

Illustrations and tables should be submitted on separate sheets.

Page Numbers and Headings. Page numbers should be typed at the top of the page.

The title of the paper should be typed in capital letters near the top of the first page, with the name(s) and affiliation(s) of the author(s) typed just below. Headings within the article should be arranged according to their relative importance.

References to the literature should be cited by the number in parentheses in the text and listed in numerical order in a single-spaced typed list placed at the end of the manuscript. Abbreviations of journals should conform to those of *Chemical Abstracts Service Source Index, 1969*. Note the following examples.

For a journal article:

1. Chatteraj, D. K., and Bull, H. B. (1971) Arch. Biochem. Biophys. 142, 363-370.

For a book by one or more authors:

2. Robinson, G. A., Sutherland, E. W., and Butcher, E. (1971) Cyclic AMP, pp. 298-302, Academic Press, New York.

Note that inclusive pagination must be given.

Acknowledgment of Receipt. Authors desiring acknowledgment of receipt of manuscript should enclose a stamped self-addressed card.

Reprints. Reprint order forms, with price lists, are sent to the authors immediately upon acceptance of their manuscript.

